IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

IN RE: SITAGLIPTIN PHOSPHATE ('708 & '921) PATENT LITIGATION

MDL No. 19-2902-RGA

Civil Action Nos. 19-311-RGA,
19-312-RGA,
19-313-RGA,
19-314-RGA,
19-317-RGA,
19-318-RGA,
19-319-RGA,
19-347-RGA,
19-1489-RGA.

MEMORANDUM OPINION

Elise M. Baumgarten (argued), Shaun P. Mahaffey (argued), Alexander Zolan (argued), Stanley E. Fisher (argued), Bruce Genderson, Jingyuan Luo (argued), WILLIAMS & CONNOLLY LLP, Washington, DC; Daniel M. Silver, Alexandra M. Joyce, McCARTER & ENGLISH LLP, Wilmington, DE, attorneys for Plaintiff.

Emily Rapalino (argued), Sarah Fischer (argued), GOODWIN PROCTER LLP, Boston, MA; Dominick T. Gattuso, HEYMAN ENERIO GATTUSO & HIRZEL LLP, Wilmington, DE, attorneys for Defendants Sandoz, Teva, and Watson.

Jonathan Bachand (argued), William Zimmerman, Andrea Cheek, KNOBBE, MARTENS, OLSON & BEAR, LLP, Washington, DC; Frederick L. Cottrell, III, RICHARDS LAYTON & FINGER P.A., Wilmington, DE, attorneys for Defendant Lupin.

Guylaine Hache, KATTEN MUCHIN ROSENMAN LLP, Chicago, IL; Christopher J. Cassella, LOCKE LORD LLP, Chicago, IL; John C. Phillips, Jr., PHILLIPS, MCLAUGHLIN & HALL, P.A., Wilmington, DE, attorneys for Defendants Apotex and Zydus.

Aziz Burgy (argued), Christopher Gallo, David Silverstein, AXINN VELTROP & HARKRIDER LLP, Washington DC, New York, NY; Steven J. Fineman, RICHARDS LAYTON & FINGER P.A., Wilmington, DE, attorneys for Defendants Par and Anchen.

Claire Fundakowski (argued), Charles B. Klein, WINSTON & STRAWN LLP, Washington DC; Anne Shea Gaza, YOUNG CONAWAY STARGATT & TAYLOR, LLP, Wilmington, DE, attorneys for Defendant Sun.

November 17, 2020

/s/ Richard G. Andrews
ANDREWS, U.S. DISTRICT JUDGE:

Before the Court in this multi-district litigation is the issue of claim construction of various terms in U.S. Patent Nos. 7,326,708 ("the '708 patent") and 8,414,921 ("the '921 patent"). The Court has considered the parties'[1] Joint Claim Construction Brief, accompanying exhibits, and a supplemental expert declaration. (D.I. 136; D.I. 137; D.I. 138; D.I. 193).[2] The Court heard oral argument on August 18, 2020. (D.I. 192 [hereinafter, "Tr."]).

I. BACKGROUND

The '708 patent and '921 patent are directed to the dihydrogenphosphate salt of a dipeptidyl peptidase-IV inhibitor for the prevention and treatment of Type 2 diabetes. The invention claimed in the '708 patent relates to a crystalline monohydrate of the dihydrogenphosphate salt as well as a process for its preparation and pharmaceutical composition. ('708 pat., Abstract). The '921 patent describes pharmaceutical compositions of the dihydrogenphosphate salt of a dipeptidyl peptidase-IV inhibitor and metformin, as well as methods of preparing such pharmaceutical compositions. ('921 pat., Abstract).

The following claims are relevant for the purposes of this Markman:

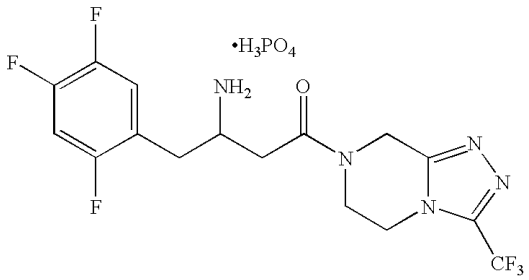
[1] Merck entered into consent judgments with some Defendants before the Markman briefing. Merck has since entered into consent judgments with other Defendants that participated in the Markman hearing. There are newer Defendants that did not participate in the Markman hearing. And, due to the pending IPR in connection with the '708 patent, Mylan did not join in any of Defendants' proposed claim constructions. (D.I. 136 at 2 n.3).

[2] All citations to the docket refer to the docket for Civil Action No. 19-md-2902-RGA. The parties submitted a Joint Appendix, referred to herein as "J.A." It is located at D.I. 137 & 138. The patents-in-suit are on the docket at D.I. 137-1, Exhibits 1 and 2.

Claim 1 of the '708 Patent[3]

1. A dihydrogenphosphate salt of 4-oxo-4-[3-(trifluoromethyl)-5,6-dihydro[1,2,4]triazolo[4,3-a]pyrazin-7(8H)-yl]-1-(2,4,5-trifluorophenyl)butan-2-amine of structural formula I:

(I)

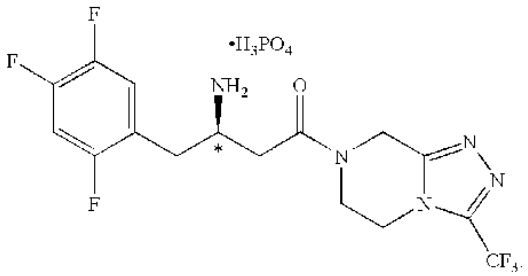


or a hydrate thereof.

Claim 2 of the '708 Patent

2. The *salt of claim 1* of structural formula II having the (R)-configuration at the chiral center marked with an *

(II)

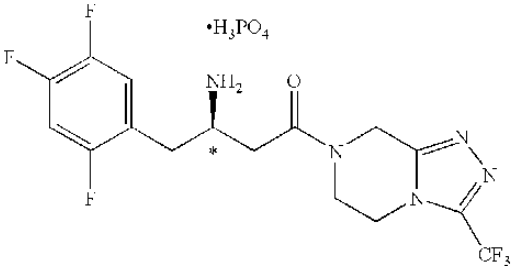


Claim 24 of the '708 Patent

24. A process for preparing the crystalline monohydrate of claim 4 comprising the steps of:

(a) *crystallizing the dihydrogenphosphate salt of structural formula (II):*

(II)



[3] Claim 1 of the '708 patent is not directly in dispute. It is included here as it is relevant for understanding disputes between the parties pertaining to '708 patent claims 2, 3, and 21, which depend from claim 1.

at 25° C. from a mixture of isopropanol and water, such that the water concentration is above 6.8 weight percent;

(b) recovering the resultant solid phase; and

(c) removing the solvent therefrom.

Claim 1 of the '921 Patent

1. A pharmaceutical composition comprising:

(a) about 3 to 20% by weight of *sitagliptin*, or a pharmaceutically acceptable salt thereof;

(b) about 25 to 94% by weight of metformin hydrochloride;

(c) about 0.1 to 10% by weight of a lubricant;

(d) about 0 to 35% by weight of a binding agent;

(e) about 0.5 to 1% by weight of a *surfactant*; and

(f) about 5 to 15% by weight of a diluent.

II. LEGAL STANDARD

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). "'[T]here is no magic formula or catechism for conducting claim construction.' Instead, the court is free to attach the appropriate weight to appropriate sources 'in light of the statutes and policies that inform patent law.'" *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Of these sources, "the specification is always highly relevant to the claim construction analysis. Usually,

it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315 (internal quotation marks and citations omitted).

> "[T]he words of a claim are generally given their ordinary and customary meaning. . . . [The ordinary and customary meaning is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application."

Id. at 1312–13 (internal quotation marks and citations omitted). "[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314 (internal citations omitted).

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court's construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings based upon consideration of extrinsic evidence, which "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips*, 415 F.3d at 1317–19 (internal quotation marks and citations omitted). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

"A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would

exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (internal quotation marks and citation omitted).

III. CONSTRUCTION OF DISPUTED TERMS

At oral argument, I adopted the following constructions:

Claim Term	**Construction**
"crystalline monohydrate [of the dihydrogen phosphate salt of sitagliptin]" ('708 pat. claims 4 and 24) "sitagliptin phosphate monohydrate" ('921 pat. claims 22, 24-26)[4]	"a repeating unit cell incorporating a 1:1 ratio of water to a dihydrogenphosphate salt of sitagliptin" (Tr. 72:2-83:13).
"characteristic absorption bands obtained from the X-ray powder diffraction pattern at spectral d-spacings of" ('708 pat. claims 5-8)	Indefinite. "Absorption bands" has no understood meaning, and it is not a "typographical error" that I can correct. (Tr. 83:14-95:8).

I reserved judgment on the following terms: "the salt of claim 1 [or 2] . . ." ('708 pat. claims 2, 3, and 21); "crystallizing the dihydrogenphosphate salt of [sitagliptin] at 25°C" ('708 pat. claim 24); "surfactant" ('921 pat. claims 1, 3, 5-8, 10, 11, and 21); "sitagliptin" ('921 pat. claims 1, 3, 5, 7, 10, and 12-14); "sodium lauryl sulfate" ('921 pat. claims 1, 3, 5, 7, 10, and 12-14).

1. Term 1: "the salt of claim 1 [or 2] . . ." ('708 pat. claims 2, 3, and 21)

a. *Plaintiff's proposed construction*: Does not exclude hydrates.

b. *Defendant's proposed construction*: Excludes hydrates of the claimed salt.

c. *Court's construction*: Does not exclude hydrates.

The parties dispute whether the at-issue claims should be limited to exclude hydrates of the claimed salt, or whether "the salt of" preamble is inclusive of the full scope of claim 1,

[4] The parties agreed that these differently-worded terms in the '708 and '921 patent have the same meaning. (Tr. 72:10-13). Thus, the same construction applies to each term.

including hydrates. (D.I. 136 at 6).

Defendants contend that claim 1 of the '708 patent contains a disjunctive "or" followed by "a hydrate thereof" limitation, which they argue distinguishes the hydrate form of the compound recited in claim 1 from the salt form. (*Id.* at 12-13). Therefore, Defendants argue that, for example, claim 2's preamble "[t]he salt of claim 1" limits claim 2 by only claiming the salt form of the compound and eliminating the "hydrate thereof" element. (*Id.* at 13). Defendants analogize this to *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284 (Fed. Cir. 2006). There, Defendants explain, "Independent claim 1 expressly claimed a compound 'or pharmaceutically acceptable salts thereof,' while dependent claim 2 recited only 'a compound of claim 1' without specifying 'or pharmaceutically acceptable salts thereof.[5]'" (*Id.* at 13-14, citing *Pfizer*, 457 F.3d at 1288). Defendants continue that the Court there held that claim 2 did not include salts and that "given the absence of 'pharmaceutically acceptable salts thereof' language which was used in claim 1, the intrinsic evidence would not have supported such an interpretation of claim 2." *Pfizer*, 457 F.3d at 1291 n. 6. Defendants assert that holding is applicable here, and therefore the at-issue claims are limited to the salt form of the compound recited in claim 1. (D.I. 136 at 13-14, 23; Tr. 54:21-56:18).

Defendants attempt to bolster their argument by pointing to claim 19, which recites a method claim directed to treatment of type 2 diabetes by administering "the salt according to claim 2 *or a hydrate thereof*." (D.I. 136 at 14 (quoting claim 19)). Defendants maintain that if "claim 2 encompassed hydrates, then the language 'or a hydrate thereof' in claim 19 would be superfluous." (*Id.* at 15, citing *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334,

[5] Claim 2 of the at-issue patent in *Pfizer* claimed: "A compound of claim 1 which is [R-(R*R*)]-2-(4-fluorophenyl)-β-δ-dihydroxy-5-(1-methlethyl)-3-phenyl-4[(phenylamino)carbonyl]-1H-pyrrole-1-heptanoic acid." *Pfizer*, 457 F.3d at 1288.

1340 (Fed. Cir. 2016); *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005)).

Plaintiff contends that as dependent claims using the language "the salt of claim 1 [or 2]," claims 2, 3, and 21 refer back to claim 1 and should be construed to incorporate all of the limitations of claim 1, including limitations to the salt form and the hydrates of the salt. (D.I. 136 at 8). To this end, Plaintiff states that, consistent with 35 U.S.C. § 112(4), "the salt of claim 1 [or 2]" is used as shorthand to incorporate by reference the entire subject matter of the independent claim. (*Id.* at 9). Plaintiff contends that the only narrowing claims 2 or 3 provide are stereochemistry limitations to particular enantiomeric forms of the compound in claim 1, and all other limitations in claim 1 apply. (*Id.* at 8-9, 17). Plaintiff argues that the claims that depend from claim 2 confirm that it covers hydrates, as claim 4, dependent on claim 2, "covers the 'crystalline monohydrate' form of the salt—clearly a hydrate." (*Id.* at 8-9, collecting case law).

Plaintiff argues that the written description and prosecution history support its view that the at-issue claims cover hydrates. For written description, Plaintiff argues the specification "states that in an 'embodiment of the present invention, the dihydrogenphosphate salt of structural formulae I-III [which covers sitagliptin] ***is a crystalline hydrate***.'" (*Id.* at 10, citing J.A. 1 ('708 Patent), 3:53-55 (emphasis added)). Along this line, Plaintiff contends that the salt form of the compound recited in claim 1 is still a salt whether it is hydrated or not, and therefore referring to the salt form alone still covers the hydrate. (Tr. 67:4-10; 68:22-69:7). As to the prosecution history, Plaintiff notes that the Examiner provisionally rejected claims including the at-issue claims based on obviousness-type double patenting over a then co-pending patent application. (*Id.* at 10, citing J.A. 5 at 8). Plaintiff maintains that in overcoming this rejection, Applicants explained that the pending application covered the monohydrate form, which was

patentably distinct from the anhydrate form of the co-pending application. (*Id.* at 10-11, citing J.A. 6 at 9). Plaintiff asserts that this explanation makes clear that Plaintiff understood the claims under rejection, which include the at-issue claims, to cover at least the monohydrate. (*Id.*)

Defendant responds that the use of "or" in claim 1 means that the salt form and the hydrate form are mutually exclusive, and claims 2 and 3 narrowed scope in covering only the salt form in addition to the respective enantiomeric limitations. (*Id.* at 12-13; Tr. 53:2-15). For written description, Defendants argue that the specification describes a "hydrate thereof" as distinct from the dihydrogenphosphate salt. (D.I. 136 at 15-16). As to the prosecution history, Defendants contend that Applicants' use of "dihydrogenphosphate salt and the crystalline monohydrate form" to distinguish between the pending application and the anhydrate form of the co-pending application demonstrate Plaintiff's understanding of two distinct forms. (*Id.* at 16, citing J.A. 6 at 9).

I construe claims 2, 3, and 21 to be inclusive of hydrates. I agree with Plaintiff that claim 4, which specifically claims a monohydrate, is informative as to the scope of claim 2 in covering hydrates. *Laitram Corp. v. NEC Corp.*, 62 F.3d 1388, 1392 (Fed. Cir. 1995) ("[D]ependent claims can aid in interpreting the scope of claims from which they depend"). Defendants argue that further dependent claims cannot be used to save the plain meaning of the claim from which they depend, citing *Pfizer*, 457 F.3d at 1291-92, for the holding there that claim 2 excluded salts even though claims depending therefrom expressly included salts. (D.I. 136 at 15, 23). I disagree that the claims in *Pfizer* present the same issue as the current claims. In *Pfizer* independent claim 1 covered: "(1) atorvastatin acid; or (2) atorvastatin lactone; or (3) pharmaceutically acceptable salts thereof." 457 F.3d at 1288. The *Pfizer* Court then explained that the only limitation claim 2 recited was atorvastatin acid, and, "Notably, it does not include

the pharmaceutically acceptable salts of atorvastatin acid." *Id.* at 1291. As I stated at oral argument, in *Pfizer* the claims recited "A, or B, or C. And then claim 2 is claim 1 where it's A. … [I]n this case, you have claim 1 where it's A or B, and then you have in claim 2 a reference to claim 1 with a further limitation." (Tr. 57:10-17). The dependent claims here recite further limitations beyond the sole reference to the independent claim. This was not the case in *Pfizer*.

Further distinguishing these cases, the *Pfizer* Court noted, "given the absence of the 'pharmaceutically acceptable salts thereof' language which was used in claim 1, the intrinsic evidence would not have supported such an interpretation of claim 2." *Pfizer*, 457 F.3d at 1291 n. 6. Here, the intrinsic evidence is supportive of including hydrates. The specification includes an embodiment in which the dihydrogenphosphate salt is a crystalline hydrate. (D.I. 136 at 10; '708 pat. 3:53-55). Although Defendants point to multiple places within the specification that disclose a salt or a crystalline hydrate thereof (D.I. 136 at 15-16; '708 pat. 3:7-26, 3:27-46; 4:33-39, 4:43-45, 4:49-51, 7:46-52), the specification also includes multiple disclosures in which hydrates are referred to as salts. ('708 pat. 3:53-55, 4:24-28 ("crystalline dihydrogenphosphate salt monohydrate"), 5:10-15, 6:26-28, 6:52-55, 14:48-52 ("crystalline dihydrogenphosphate salt monohydrate of the present invention . . . ."), 15:4-5, 15:16-17, 15:31-32).

During prosecution, the nature of the current claims directed to hydrates allowed the Applicants to overcome the rejection over the co-pending anhydrous patent. (D.I. 136 at 21; J.A. 5 at 8). Defendants argue, "Merck viewed (a) the claimed dihydrogenphosphate salt and (b) the crystalline hydrate of the '708 patent as patentably distinct embodiments, each of which were distinct from the crystalline anhydrate form recited in the other applications." (D.I. 136 at 16). Despite Defendants' argument, no distinction was made during prosecution that the hydrate form was patentably distinct for only some and not all of the pending claims. (D.I. 136 at 21). Merck

was overcoming the patentability rejection by wholesale distinguishing between the hydrate and anhydrous forms; Merck was not attempting to distinguish between the salt and hydrate forms and, then further intending to distinguish between these forms and the anhydrous forms. (J.A. 6 at 9).

In regard to the claims themselves, I agree that, consistent with 35 U.S.C. § 112(4), dependent claims may use a shorthand to refer to the entire subject matter of the independent claim. *See, e.g., SPRT, LLC v. B2 Networks, Inc*., 2011 WL 7640123, at *14 (N.D.N.Y. Sept. 1, 2011) ("It would be superfluous to additionally import [independent claim] concepts into the definition of "video events" when they are clearly already part of claim one and, correspondingly, the following dependent claims."); *Ravo v. Covidien LP*, 2014 WL 198551, at *2 (W.D. Pa. Jan. 16, 2014) ("The term 'surgical device' in Claim 9 is a shorthand way of referring back to the four structural elements that comprise the same "surgical device" claimed in Claim 1, without having to restate each one. This is precisely the purpose of writing a claim in dependent form according to federal law and the MPEP.")

Defendants point to claim 19 as using superfluous language if all of the limitations of claim 1 are incorporated into claim 2. There is some force to this argument, as I think Plaintiff recognizes. (Tr. 69:23 ("or a hydrate thereof" in claim 19 is "likely superfluous")). I understand Plaintiff's point that claim 19 is arguably an independent claim. (Tr. 67:23-68:5; 69:17-20). Regardless, I agree the method claim of claim 19 is structured differently than the claims at issue and does not recite the same preamble as they do. (*Id.* at 69:21-70:10). I think it is less persuasive than the clearly-dependent claim that necessarily shows that hydrates were included within claim 2. The at-issue claims do not exclude hydrates.

2. **Term 2: "crystallizing the dihydrogenphosphate salt of [sitagliptin] at 25°C" ('708 pat. claim 24)**

    a. *Plaintiff's proposed construction*: performing the crystallization of the dihydrogenphosphate salt of sitagliptin wherein some or all of the crystallization occurs at 25°C.

    b. *Defendant's proposed construction*: performing the crystallization of the monohydrate of sitagliptin dihydrogenphosphate wherein the formation of crystalline solids begin at 25°C.

    c. *Court's construction*: crystallizing the dihydrogenphosphate salt of sitagliptin wherein the greatest amount of crystallization occurs at 25°C.

The parties dispute whether step (a) of claim 24 requires some or all of the crystallization of sitagliptin to occur at 25°C (as Plaintiff contends) or whether the formation of crystalline solids must begin at 25°C (as Defendants contend). I reject both proposed constructions because I do not think either captures what a POSA would understand from the limitation.

Plaintiff asserts that claim 24 requires only that some crystallization occur at 25°C. (D.I. 136 at 42, 46). Plaintiff argues that the open-ended "comprising" term allows for additional, unrecited steps, which can include crystallization at other temperatures beside 25°C, so long as some crystallization happens at 25°C. (*Id.* at 42-43). Plaintiff urges that nothing in the specification or the claims requires the formation of crystalline solids to begin at 25°C. (*Id.* at 46). To this end, Plaintiff maintains that the specification's Example (col. 13 ll. 4-21) would provide a POSA with the understanding that at least some of the crystallization occurs at 25°C as the crystal-seeded composition is cooled from 68ºC through 25°C to 21ºC. (*Id.* at 43, 46).

Defendants assert that a POSA would understand "crystallization … at" to be the temperature at which crystallization begins. (*Id.* at 43). Defendants explain that the specification's Example does not meaningfully inform a POSA of when crystallization occurs because the Example "describes crystallizing sitagliptin dihydrogenphosphate monohydrate at

68°C rather than at 25°C," which would mean that there would be crystallization at every temperature from 68ºC to 21ºC. (*Id.* at 44-45). As such, Defendants argue, "Merck's proposed construction impermissibly expands claim scope by incorporating a range into the claim," and, if the "at 25°C" limitation was intended to be a range, Merck would have claimed a range, as it did in claim 21, which recites "at a temperature in the range of about 25-100°C." (*Id.*, citing '708 pat. at claim 21).

Both parties present argument that the other's construction could allow for an insignificant amount of crystallization to happen within or outside of the scope of the other's construction, and thereby either infringe or not infringe as a result of an insignificant amount of crystallization. Specifically, Plaintiff argues that under Defendants' construction, "if you had a tiny bit of crystallization of 28 degrees and then the rest of it at 25 degrees, you'd be outside the scope of the claims." (Tr. 102:6-9). Defendants argue, "[W]hat [Plaintiff is] really trying to encompass is something that is at this outlying end of the range at a point at which there is little, if any, crystallization actually occurring in the process as described in the specification." (*Id.* at 109:22-110:1).

Based on the oral argument, and consideration of the intrinsic record, I think that a POSA understands crystallization to be a process that occurs over a range of temperatures. I further conclude that the plain meaning of ascribing a singular temperature to a crystallization process would be to indicate that the given temperature is the most important to producing the desired crystalline form. Thus, I conclude that crystallizing at a given temperature, in the absence of some contrary indication, refers to the most productive temperature for crystallization. My construction attempts to capture that concept.

When questioned on why claiming "crystallizing at 25°C" would be meaningful to a

POSA and not just an arbitrary selection of temperature if crystallization is actually occurring in a range from 68ºC to 21ºC, as disclosed in the Example relied upon by Plaintiff, Plaintiff responded that "the temperature that crystals form at can determine what polymorph you get." (*Id.* at 99:22-100:21). As Plaintiff's expert, Dr. Myerson, declared, "The temperature at which crystals form as part of a crystallization procedure can be important information, including because different polymorphs can form at different temperatures." (J.A. 36 ¶34).

Defendants' expert, Dr. Buckton, declared that a POSA would not understand claim 24 to refer to the Example, but rather to process (e) under the section "General Methods for Crystallizing the Monohydrate of [sitagliptin dihydrogenphosphate]" (J.A. 40 ¶29, citing '708 pat. at 7:22-29), because that process discloses a crystallization process at 25°C. Plaintiff's expert Dr. Myerson disagreed. He explained, "[T]he POSA would have understood that under [all] the conditions recited in the General Methods … the monohydrate is the thermodynamically most stable crystalline form." (D.I. 193 ¶8). Dr. Myerson continued that rather than the "General Methods" reflecting mutually exclusive crystallization protocols, "[m]ethods (e), (f), and (g) … all disclose different combinations of temperature and water concentration in which the crystalline monohydrate is thermodynamically favored." (*Id.* at ¶10). Dr. Myerson declared that Plaintiff's construction is proper because "at least some crystallization would have to occur under conditions wherein the crystalline monohydrate is thermodynamically favored," and while the use of "comprising" allows for "other unclaimed steps at other conditions … where the monohydrate is not favored," claiming crystallization at 25°C "could cause non-monohydrate crystals to convert to the monohydrate form." (*Id.* at ¶14). Dr. Myerson concluded that it was "reasonable for the inventors to claim one particular set of conditions through which the crystallization process must pass, without limiting the claim further by reciting other conditions

at other temperatures." (*Id.*).

Taken to its logical conclusion, as the monohydrate is the thermodynamically favored at all of the conditions set forth in the patent (*id.* at ¶8), it is reasonable that a POSA would understand that, as the 25°C limitation with a specified water concentration is the only set of conditions actually claimed in claim 24, the monohydrate crystallizes in greatest abundance (relative to other points in the crystallization process) at that temperature and water concentration. This comports with Plaintiff's expert's view that all of the conditions set forth in the specification thermodynamically favor the monohydrate polymorph, while recognizing the claim's 25°C limitation and specified water concentration are conditions where the crystallization of the monohydrate is "thermodynamically favored." That does not mean that there cannot be crystallization of the monohydrate at other conditions in the process. My construction also accords with Defendants' stated intention not to "rigidly exclude some amount of crystal formation" outside of 25°C. (Tr. 116:20-22, 117:14-17).

3. **Term 3: "surfactant" ('921 pat. claims 1, 3, 5-8, 10, 11, and 21)**

   a. *Plaintiff's proposed construction*: plain and ordinary meaning.

   b. *Defendant's proposed construction*: an agent used as a wetting agent to facilitate liquid ingress into the composition to increase the dissolution of sitagliptin and metformin in a single granulation.

   c. *Court's construction*: surfactant that works as a wetting agent to increase the dissolution of sitagliptin.

Defendants argue prosecution disclaimer. They say Plaintiff narrowed the patent's claim scope to "an agent used as a wetting agent to facilitate liquid ingress into the composition to increase the dissolution of sitagliptin and metformin in a single granulation." (D.I. 136 at 52). Thus, Defendants advocate for a construction in which the "surfactant" is used as a "wetting agent" and the two active ingredients, sitagliptin and metformin, are used in a "single

granulation." (*See, e.g.*, D.I. 136 at 52; Tr. at 9-11, 16).

In terms of the first limitation, Defendants argue that throughout the prosecution of the '921 patent, the Applicants surrendered scope otherwise conveyed by the plain and ordinary meaning of surfactant, which purportedly includes wetting agents, emulsifying agents, solubilizers, and suspension stabilizers. (*Id.* at 52). Defendants contend that when the claims were rejected on the basis of prior art that taught using the surfactant sodium lauryl sulfate, Plaintiff argued that the surfactant in the claims performed different functions, and therefore the prior art did not teach the claimed surfactant. (*Id.* at 53). Defendants further point to Plaintiff's statements within the prosecution history that "the claimed 'surfactant' unexpectedly improved 'the rapid dissolution of sitagliptin phosphate and metformin hydrochloride.'" (*Id.* at 54, citing J.A. 14 at 13). Defendants argue that Plaintiff used the unexpected improvements to distinguish the prior art, which "failed to teach that sitagliptin could be added to metformin-containing compositions 'without further work on the formulation.'" (*Id.*, citing J.A. 14 at 15).

In terms of the second limitation, Defendants argue that Plaintiff surrendered scope by arguing "that the surfactant must 'increase the dissolution of the sitagliptin and metformin,' and emphasiz[ing] that this was important because 'the present invention' requires 'both sitagliptin and metformin in a single granulation.'" (*Id.* at 55-56, citing J.A. 14 at 13-15).

Plaintiff argues that under claim differentiation, surfactants should not be limited to wetting agents because, "Claim 1 recites a pharmaceutical composition comprising '(e) about 0.5 to 1% by weight of a surfactant,'" and claim 2 "recites the 'pharmaceutical composition of claim 1 additionally comprising one or more excipients selected from the group consisting of (a) a disintegrant; (b) *a wetting agent*; and (c) an anti-oxidant.'" (*Id.* at 49-50, citing '921 pat. claims 1 and 2). Therefore, Plaintiff argues that a construction in which surfactant is limited to a wetting

agent would render the "a wetting agent" limitation in claim 2 superfluous. *Id.* Plaintiff argues that, since the specification states "pharmaceutical compositions of the present invention may also optionally contain one or more surfactants or wetting agents" (*id.*, citing '921 pat. 5:37-39), "surfactant" cannot mean "wetting agent." Plaintiff further contends that any statements Defendants argue amount to prosecution disclaimer are merely statements characterizing a particular embodiment of the claimed invention presenting unexpected results. (*Id.*) Plaintiff also points to statements in the prosecution history describing "a surfactant, such as sodium lauryl sulfate, or a wetting agent," and argues that the Examiner rejected Defendants' interpretation by "stating that sodium lauryl sulfate would satisfy the claim limitations regardless of its functionality." (*Id.* at 50-51).

Regarding a construction that imports a single-granulation limitation into the term "surfactant," Plaintiff argues that the reference to "single granulation" was a passing reference that does not rise to the level of clear and unmistakable disclaimer of claim scope, and is unrelated to the term "surfactant." (*Id.* at 51).

I construe "surfactant" as "a surfactant that works as a wetting agent to increase the dissolution of sitagliptin." The Applicants' statements in the prosecution history rise to the level of clear and unmistakable disavowal as, throughout the prosecution, in order to overcome multiple pieces of prior art, the Applicants limited the functioning of a surfactant to a wetting agent that increases the dissolution of sitagliptin. *See Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324-26 (Fed. Cir. 2003)("where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." "[F]or prosecution

disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable.").

I now consider some of the relevant prosecution history.

(i) Rejection based on U.S. 2007/0072810 ('810)

To overcome a rejection based on '810, Applicants submitted that '810 generally discloses surfactants and lubricants as pharmaceutically acceptable carriers, and that '810 teaches sodium lauryl sulfate as a lubricant, and not as a surfactant. (J.A. 14 at 12-13). Applicants stated that the disclosures within '810 would not have motivated a POSA to "use a surfactant, such as sodium lauryl sulfate, to increase the dissolution of the sitagliptin and metformin pharmaceutical compositions and tablets of the present invention." (*Id.* at 13). The Applicants particularly noted that while sitagliptin and metformin are individually soluble such that a surfactant is not necessary in their individual formulations, it was surprising that due to the high dose of metformin, the sitagliptin/metformin disintegration and dissolution rate of sitagliptin in the combined tablet was relatively slow. (*Id.*) As a result, a surfactant that works as a wetting agent, such as sodium lauryl sulfate, increases the dissolution rate in the combined tablet and thereby minimizes changes in stability and increases bioavailability. (*Id.*)

(ii) Rejection based on U.S. 2005/0051922 ('922)

To overcome a rejection based on '922, Applicants submitted that in '922, the sodium lauryl sulfate is used as an extra-granular absorption/compression enhancer to increase the hardness of the tablet, and the '922 does not disclose sodium lauryl sulfate as a surfactant. (*Id.* at 14, 18). The Applicants clarified, "In the present invention, a surfactant, such as sodium lauryl sulfate, works as a wetting agent to facilitate liquid ingress into the tablet to promote rapid tablet dissolution." (*Id.* at 14). The Applicants explained that the surfactant enhanced the dissolution

rate and minimized changes in stability because, without a surfactant, such as sodium lauryl sulfate, the dissolution and bioavailability of the sitagliptin and metformin pharmaceutical composition would be adversely impacted. (*Id.*)

(iii) Rejection based on U.S. 2003/0166578 ('578)

Applicants explained that in '578, sodium lauryl sulfate was used as a lubricant, a disintegrant, and as a wetting agent. (*Id.* at 17). To overcome a rejection based on '578, Applicants explained that sodium lauryl sulfate did not act as a lubricant or disintegrant in the present formulation. (*Id.*) Recognizing that '578 discloses sodium lauryl sulfate as a wetting agent, Applicants distinguished it by explaining that in '578 the purpose of the surfactant as a wetting agent was to facilitate uniform distribution of the compound, whereas in the present invention sodium lauryl sulfate is used to increase dissolution of the tablet. (*Id.* at 17-18). Applicants concluded that, based on the disclosures of '578, a POSA would not have been motivated to use a surfactant, such as sodium lauryl sulfate, or a wetting agent[6] to increase the dissolution rate of the sitagliptin and metformin hydrochloride tablet. The Applicants repeated their previously stated position, "Without a surfactant, such as sodium lauryl sulfate, the dissolution and bioavailability of the pharmaceutical composition of sitagliptin and metformin are adversely impacted." (*Id.* at 17).

[6] Plaintiff contends that the use of "sodium lauryl sulfate, or a wetting agent" cuts against disclaimer, as a wetting agent is used as an alternative to sodium lauryl sulfate. (D.I. 136 at 50; Tr. 28:11-23). However, '578 discloses "a surfactant or wetting agent." ('578 at [0088]). I agree with Defendants that Plaintiff was not intending to distinguish between a surfactant and wetting agent, but rather repeating the language of the prior art reference. (Tr. 36:17-37:9).

(iv) Rejection based on U.S. 2009/0253752 ('752)

Applicants submitted that '752 would not have motivated a POSA to use a surfactant, such as sodium lauryl sulfate, to increase the dissolution of the sitagliptin and metformin tablets of the present invention. (*Id.* at 19).

(v) Applicants' Declaration under 37 C.F.R. § 1.132 and Notice of Allowance

Following these prosecution assertions, the Examiner required "factual evidence" in order to find the arguments persuasive. (D.I. 136 at 62; J.A. 17 at 14.) While Plaintiff argues that the Examiner rejected Defendants' interpretation by stating that sodium lauryl sulfate would satisfy the claim limitations regardless of its functionality (D.I. 136 at 51), I agree with Defendants that the Examiner's rejection was not rooted in disagreement with Defendants' interpretation, but rather was based on a need for "sufficient factual evidence" beyond "mere argument of counsel." (*Id.* at 57; J.A. 17 at 14.) The Examiner said as much. Consistent with what the Examiner said, after Plaintiff submitted the suggested declaration (*see* J.A. 16), the Examiner allowed the claims. (*See* J.A. 17).

The declaration by Plaintiff's Director of Formulation Science again stated, "In the claimed invention, a surfactant, such as sodium lauryl sulfate, works as a wetting agent to facilitate liquid ingress into the tablet to promote rapid tablet dissolution." (J.A. 16 at 3). The declaration made further disavowing statements that the addition of a surfactant "enhanced the dissolution rate, … enhanced formulation robustness and stability, by maintaining the dissolution performance of the tablets when subjected to elevated temperatures and humidities over the tablet shelf life," and "the addition of a surfactant that works as a wetting agent, such as sodium lauryl sulfate (SLS), significantly increased the dissolution rate of sitagliptin in the pharmaceutical compositions." (*Id.* at 4). The declarant concluded that "one of ordinary skill in

the art would have found it surprising and unexpected that the addition of a surfactant, such as sodium lauryl sulfate (SLS), increased the dissolution rate of sitagliptin in the pharmaceutical compositions." (*Id.* at 5). The Examiner then stated that the reason for the allowance was, "The declaration shows that SLS as a surfactant unexpectedly 'increased the dissolution rate of the sitagliptin' in the combination pharmaceutical dosage form of sitagliptin and metformin and 'enhanced formulation robustness and stability, by maintaining the dissolution performance of the tablets when subjected to elevated temperatures and humidities over the tablet shelf life.'" (J.A. 35 at 2, citing J.A. 16 at 4-5). The Examiner specifically cited that the declaration was sufficient to overcome rejections based upon '810, '922, and/or '752. (*Id.*)

In light of the multiple Applicants' statements regarding how the surfactant functions and the Examiner's reliance on the Applicants' declaration in order to obtain the patent, I construe "surfactant" as "a surfactant that works as a wetting agent to increase the dissolution of sitagliptin." *Omega Eng'g, Inc.* 334 F.3d at 1323 ("The doctrine of prosecution disclaimer is well established in Supreme Court precedent, precluding patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution.").

Plaintiff's arguments of claim differentiation and differentiation in the specification are unavailing. (Tr. 23:10-24; *see Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713 F.3d 1090, 1097 (Fed. Cir. 2013) ("Our cases make clear, however, that where found, prosecution history disclaimer can overcome the presumption of claim differentiation.").

Further, I do not find the prosecution disclaimer goes as far as to include sitagliptin and metformin in a single granulation. I agree with Plaintiff that the single "passing reference to a single granulation does not rise to the level of clear and unmistakable disclaimer of claim scope." (D.I. 136 at 51). As Plaintiff explains, Applicants were differentiating prior art reference '922 by

explaining that it did not teach formulations containing both sitagliptin and metformin, but rather taught a formulation containing only metformin. (*Id.* at 51, 60; J.A. 14 at 15). A one-time reference to "single granulation" in a different context does not rise to the level of clear and unmistakable disavowal.

4. **Term 4: "sitagliptin" ('921 pat. claims 1, 3, 5, 7, 10, and 12-14)**

a. *Plaintiff's proposed construction*: sitagliptin.

b. *Defendant's proposed construction*: the dihydrogenphosphate salt of sitagliptin in the form of a monohydrate.

c. *Court's construction*: sitagliptin.

The parties dispute whether prosecution disclaimer limits "sitagliptin" to "the dihydrogenphosphate salt of sitagliptin in the form of a monohydrate."

Defendants argue that in response to a non-final rejection "finding that there is no invention in the combination unless there is a new and unexpected result," Plaintiff argued unexpected results. (D.I. 136 at 65). Defendants particularly point to Applicants' response, "in the present application, the claims define an invention that includes an unexpected result. First, the dihydrogen phosphate salt of sitagliptin in the form of the monohydrate does not undergo phase transformation in the final dosage form." (*Id.*; J.A. 14 at 21). Defendants contend that Plaintiff disclaimed claim scope by arguing unexpected results of only the dihydrogen phosphate monohydrate salt form of sitagliptin, and disparaged other forms of sitagliptin by stating during prosecution that the lack of phase transformation of this form "was surprising and unexpected, since the HCl salt was susceptible to these changes, and the anhydrate phosphate salt undergoes transformation to form a mixture of polymorphic forms." (D.I. 136 at 65-66; J.A. 14 at 21; Tr. 39:16-25).

Plaintiff contends that this statement only refers to one embodiment of the claims. Plaintiff argues that in addition to the specification and the claims themselves distinguishing between different forms of sitagliptin (D.I. 136 at 64), Plaintiff added claims directed to the crystalline monohydrate sitagliptin form as part of the response. (*Id.* at 67). As such, the statement regarding unexpected results related to the monohydrate was referring to the newly added, more limited claims. (*Id.*; Tr. 45:3-10). Plaintiff argues that the "particular unexpected results were just limited to the monohydrate and not all embodiments of sitagliptin," and, under Defendants' argument, "if the patented claims introduce the compounds and somehow the patentee decides to provide unexpected results for … a couple of those species, that somehow now the entire patent is just limited to the species." (Tr. 46:22-74:1).

Defendants respond that the structure of the remarks point to prosecution disclaimer because the remarks refer to the rejected claims under the heading "Claim Rejection Under 35 USC 103(a) For Obviousness," which responded to a rejection of claims that recited "sitagliptin." (D.I. 136 at 68; Tr. 49:1-7).

I agree with Plaintiff that there is no prosecution disclaimer. The one comment in the prosecution history that describes the unexpected result that "the dihydrogen phosphate salt of sitagliptin in the form of the monohydrate does not undergo phase transformation in the final dosage form" could reasonably be understood by a POSA to be referring to the newly added, more limited claims. The newly added claims are directed to the same monohydrate form as the form described by the unexpected results. There is more than one possible reasonable understanding of the supposed disclaimer, and thus it does not rise to the level of clear and unmistakable disavowal. *Omega Eng'g*, 334 F.3d at 1324-26. Defendants do not identify any specific prior art this supposed disclaimer attempted to overcome. (*See generally* D.I. 136 at 65-

68). Defendants admit that the Examiner did not address Plaintiff's remarks in the withdrawal of the rejection. (Tr. 43:6-8).

The one remark pertaining to unexpected results for a particular embodiment is not enough to surmount the distinguishing of particular sitagliptin forms in the specification and through claim differentiation. (*Id.* at 64; '921 pat. 2:4-36, claims 1, 3, 5, 7, 9, 10, 12-14, 21-28).

5. **Term 5: "sodium lauryl sulfate" ('921 pat. claims 11, 22, 24, and 26)**

   a. *Plaintiff's proposed construction*: sodium lauryl sulfate.

   b. *Defendant's proposed construction*: a surfactant used as a wetting agent to facilitate liquid ingress into the composition to increase the dissolution of sitagliptin and metformin in a single granulation, in which the surfactant is sodium lauryl sulfate.

   c. *Court's construction*: sodium lauryl sulfate.

The parties dispute whether prosecution disclaimer limits "sodium lauryl sulfate" to "a surfactant used as a wetting agent to facilitate liquid ingress into the composition to increase the dissolution of sitagliptin and metformin in a single granulation, in which the surfactant is sodium lauryl sulfate." Based upon the previous construction of "surfactant," I find that the prosecution disclaimer only goes so far as to reach "surfactant" and there is nothing in the prosecution history to extend the disclaimer to include "sodium lauryl sulfate" as well. The prosecution disclaimer only applies to "surfactant," as "sodium lauryl sulfate" was simply used as an example surfactant throughout the prosecution. Therefore, no additional construction of "sodium lauryl sulfate" is necessary.

IV. CONCLUSION

The Court construes the disputed terms as set forth above.